

ABSTRACT

An integrated circuit device includes a substrate. Drive circuitry is arranged on the substrate. A plurality of micro-electromechanical devices is positioned on the substrate.

Each device includes an elongate electrothermal actuator having a fixed end that is fast with the substrate so that the actuator is connected to the drive circuitry and a free end that is displaceable along a path relative to the substrate to perform work when the actuator receives an electrical signal from the drive circuitry. A heat sink is positioned intermediate ends of the actuator to disperse excessive heat build-up in the actuator.